

Patent Abstracts of Japan

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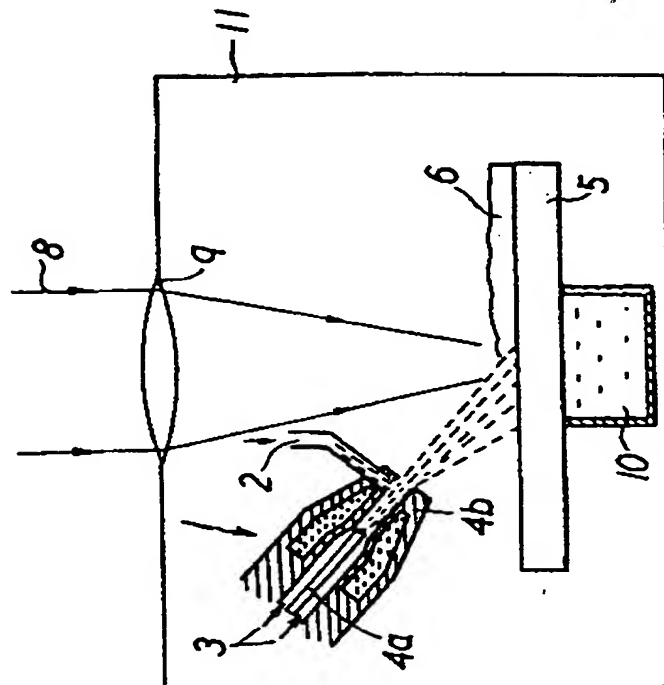
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APPLICANT : AGENCY OF IND SCIENCE & TECHNOL;

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TITLE : POWER METALLURGICAL METHOD OF METALLIC COMPOUND



ABSTRACT : PURPOSE: To form a metallic compd. material which is densely and finely crystallized by converting metallic powder together with a reactive gas to plasma by plasma spraying method and spraying thermally and depositing the metallic powder on a substrate then heating the substrate to melt and metallic powder by laser light and cooling quickly the molten powder.

CONSTITUTION: Metallic powder (for example, titanium) is supplied through a powder supply port 2 and a reactive gas (for example, gaseous nitrogen) which combines with a metal is supplied through a carrier gas feed path 3 then a high voltage is impressed between a cathode 4a and an anode 4b to convert the carrier gas to plasma by arc discharge with a plasma spraying device 1. The metallic powder is then heated to melt and is sprayed and deposited on a substrate 5. High-output laser light 8 is focused by a lens 9 and is irradiated to the deposited metallic part to melt thoroughly the metallic powder by which the combination with the reactive gas is accelerated. The thermally sprayed part of the substrate 5 is cooled from the rear by the cooling water supplied to the jacket 10.

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